DOCUMENT RESUME

ED 203 945 JC 810 400

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TITLE Principles of Learning/Teaching Strategies for College Instructors: Summary of the Questionnaire.
PUB DATE May 79
NOTE 10p.

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Academic Education: *College Faculty: *Community Colleges: Learning Theories: Student Evaluation: Surveys: *Teacher Attitudes: Teacher Characteristics: *Teacher Education: Teacher Employment: *Teacher Qualifications: Teaching Experience: Teaching Methods: *Teaching Skills: Testing: Two Year Colleges: Vocational Education

ABSTRACT

A survey of 428 instructors at four community colleges in the San Jose, California, area was conducted in May 1978 to determine the degree of importance with which faculty viewed selected pedagogical skills, and to correlate these opinions with the respondents' teaching experience and educational backgrounds. The survey instrument asked respondents to rank order the relative importance of instructor familiarity with: (1) 12 teaching strategies, including lectures, demonstrations and field trips: (2) ten evaluation and test-scoring skills, such as test-item construction and test-item analysis: (3) skills necessary in writing instructional objectives and in applying Bloom's Taxonomy: and (4) nine pedagogical theories, including stimulus response and mastery learning. In addition, the instructors were asked to indicate the number of credits they had completed in educational psychology: whether or not they had completed course work designed to prepare them as college teachers: the type of teaching credentials they held: the number of years they had been employed as full-time instructors: the subjects they taught: and the aspects of teaching they found most difficult during their first two years as college instructors. The study report details findings for each of the questionnaire items based on a 56% return rate, and statistically examines response differences between vocational and academic instructors and between instructors with varying educational backgrounds. (JP)

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ED203945

PRINCIPLES OF LEARNING/TEACHING STRATEGIES FOR COLLEGE INSTRUCTORS

Summary of the Questionnaire

Dr. Dana Elmore

San Jose State University

May 1979

JC 810 400

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
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May 1979
Dr. Dana Elmore
San Jose State Univ.

SUMMARY OF THE QUESTIONNAIRE

PRINCIPLES OF LEARNING/TEACHING STRATEGIES FOR COLLEGE INSTRUCTORS

During May of 1978, a questionnaire was sent to 428 instructors who had been identified as full-time employees of four community colleges in the general area of San Jose State University: Foothill, Gavalin, Mission, and Ohlone. These institutions were included in the survey because of their diversity in terms of size and location (city, rural). Responses were received from 240 individuals: a 56% return.

This mailing is addressed to the many respondents who indicated they would like to receive a summary. Your participation was very much appreciated. I hope this summary will prove to be of interest to you.

TABULATION, PP 5 & 6 - A FEW GENERAL COMMENTS

TEACHING STRATEGIES: UTILIZATION OF . . .

Lecturing, Discussions, and Problem solving/discovery learning are rated "extremely important" by more than half the respondents. When the "extremely important" ratings are combined with "of above average importance", the top-rated categories are Discussion, 85%; Lecture, 79%; Problem solving/discovery learning, 78%; Audio/visual materials & equipment, 73%; and Demonstrations, 70%. At the lower end of the scale, Role playing was considered to be "of very little importance" by 39%. Field trips and Brainstorming each received 29% in the same category.

EVALUATING

"Constructing objective type test items" was rated "extremely important" by 43% of the respondents. When the two columns "of above average importance" and "extremely important," are combined, the top-rated areas of knowledge and/or skill are: Constructing objective type test items, 71%; Grading systems, 63%; Item analysis, 54%; and Constructing & scoring essay test questions, 51%. Four topics were rated "of very little importance" by a third or more of the respondents: Correlation, 38%; Measures of variability, 39%; Percentile rank, 42%; and Standard scores, 46%.

GOALS/OBJECTIVES

Two of the three topics/skills were rated "extremely important" by over half the respondents: Writing general course goals, 53%; and Writing specific instructional objectives, 52%. Though 25% of the respondents gave Bloom's taxonomy of educational objectives the lowest possible rating, nearly as many indicated they knew very little about it: "insufficient knowledge to make judgment," 22%.

THEORIES OF LEARNING AND RELATED TOPICS

Five items in this section were rated "extremely important" by 50% or more of the instructors who responded: Student motivation, 75%; Reinforcement of learning, 67%; Retention of learning, 59%; Student learning styles, 52%; and Encouraging creativity, 52%. Concerning the other four topics (theories of learning), it should be noted that a large proportion of the instructors (ranging from 21 - 18%) reported "insufficient knowledge to make judgment." Of the other responses, "of above average importance" tended to be the most numerous (23 - 27%).

TREATMENT OF THE DATA

In addition to the tabulation of responses discussed above, it was decided to use the chi-square test of independence to determine whether or not the responses of various sub-groups of instructors tended to be the same or different. Specifically, the questions to be considered are:

1. Did instructors with generally more background in educational psychology respond differently from those with little or no such background?
2. Did instructors who said they had completed professional education course work (or a program) specifically designed to prepare them for teaching college courses tend to answer differently from those who had not received such preparation?
3. Did instructors with several years of teaching experience tend to respond differently as compared to less-experienced instructors?
4. Did instructors in academic fields tend to respond differently as compared to those in vocational areas?

This section reports briefly for each of these four questions, listing only the topics/skills in which there was found to be a significant relationship: $p < .05$. For example, in section 2 (below), the chi-square for Role playing was found to be 16.20, which is quite large. The probability of obtaining a value this large or larger with 3 degrees of freedom is less than .002, i.e., less than 1 chance in 2 thousand, so we may conclude that a systematic relationship DOES exist: that instructors who have completed course work in professional education for college teaching do value Role playing differently than do instructors without such preparation. A probability so small would occur by chance in only 1 sample out of 2,000. In this case, we may say that the chi-square is statistically significant at the .002 level.

1. DID INSTRUCTORS WITH GENERALLY MORE BACKGROUND IN EDUCATIONAL PSYCHOLOGY (7 OR MORE SEMESTER UNITS IN UPPER DIVISION OR GRADUATE COURSE WORK IN EDUCATIONAL PSYCHOLOGY OR PSYCHOLOGICAL FOUNDATIONS OF EDUCATION) TEND TO RESPOND DIFFERENTLY FROM THOSE WITH LESS SUCH BACKGROUND (FROM 0 - 6 SEM. UNITS)?

There were three areas of skill/knowledge that were statistically significant:

	x^2	df	p
• Brainstorming	10.75	3	$< .015$
• Writing specific instructional objectives	7.83	3	$< .05$
• Student learning styles	8.43	3	$< .04$

COMMENT: Instructors with MORE BACKGROUND tended to rate these aspects of teaching as being relatively MORE IMPORTANT than did the instructors with LESS BACKGROUND in educational psychology.

2. DID THOSE WHO SAID THEY HAD COMPLETED PROFESSIONAL EDUCATION COURSE WORK (OR A PROGRAM) SPECIFICALLY DESIGNED TO PREPARE ONE FOR TEACHING COLLEGE COURSES TEND TO RESPOND DIFFERENTLY FROM THOSE WHO HAD NOT RECEIVED SUCH PREPAPATION?

There were ten areas of skill/knowledge in which the difference in responses was significant:

	x^2	df	p
• Role playing	16.20	3	$< .002$
• Demonstrations	15.47	3	$< .002$
• Writing specific instructional objectives	14.95	3	$< .002$
• Bloom's taxonomy of educational objectives	9.77	3	$< .025$

	x^2	df	p
• Stimulus-response (Skinner)	9.60	3	<.025
• Cognitive-field (Bruner)	8.53	3	<.04
• Student motivation	10.18	3	<.02
• Reinforcement of learning	10.78	3	<.015
• Retention of learning	15.79	3	<.002
• Student learning styles	8.91	3	<.04

COMMENT: Instructors WITH PROFESSIONAL EDUCATION PREPARATION tended to rate these aspects of teaching as being relatively MORE IMPORTANT than did the instructors who had NOT had such preparation.

3. DID INSTRUCTORS WITH SEVERAL YEARS OF TEACHING EXPERIENCE (6 OR MORE YEARS) TEND TO RESPOND DIFFERENTLY AS COMPARED TO LESS-EXPERIENCED INSTRUCTORS (1 - 5 YEARS)?

The following five areas are those in which responses were significantly different:

	x^2	df	p
• Role playing	11.34	3	<.01
• Simulations	8.40	3	<.04
• Field trips	13.79	3	<.005
• Constructing & scoring essay test items	16.58	3	<.001
• Measures of central tendency (mean, median, mode)	9.22	3	<.030

COMMENT: The first three of the above-mentioned areas tend to be valued more by the LESS-EXPERIENCED INSTRUCTORS. For the last two areas, the reverse is true: they tend to be valued more by the MORE-EXPERIENCED instructors.

4. DID INSTRUCTORS IN ACADEMIC FIELDS TEND TO RESPOND DIFFERENTLY AS COMPARED TO THOSE IN VOCATIONAL AREAS AND OTHER AREAS? The academic areas include humanities/fine arts, language arts, science/math, social sciences; vocational areas are business, and occupational programs; other areas consist of health/P.E./recreation, interdisciplinary/student services.

There were thirteen areas in which response differences were statistically significant:

	x^2	df	p	
• Role playing	16.12	6	<.015	***
• Simulations	29.24	6	<.0001	****
• Demonstrations	30.39	6	<.0001	*
• Laboratory	43.97	6	<.0001	*
• Audio/visual materials & equipment	24.29	6	<.001	*
• Field trips	22.10	6	<.0015	****
• Constructing & scoring essay test questions	29.19	6	<.0001	****
• Constructing objective type test items	12.71	6	<.05	**
• Item analysis	13.37	6	<.04	**
• Grading systems	15.14	6	<.02	**
• Writing general course goals	15.37	6	<.02	*
• Writing specific instructional objectives	22.63	6	<.001	*
• Bloom's taxonomy of educational objectives	24.59	6	<.001	****

COMMENT:

* Generally valued by all the instructors, these areas of skill/knowledge were considered to be more important by instructors in the vocational areas, somewhat less important by those in "other" fields, and of least importance, but still highly valued, by instructors in academic areas. (Exception: "Other" instructors rated "Writing general course goals" slightly higher than instructors in the vocational fields.)

** Generally valued by all the instructors, these areas of skill/knowledge were considered to be more important by instructors in the vocational areas, somewhat less important by those in academic fields, and of least importance, but still highly valued, by instructors in "other".

*** Generally regarded as being of "less importance" by all three groups of instructors (more than 50% of each group falls into the two lowest categories combined), instructors in academic field tended to be less favorable than the other two groups.

**** Values concerning these areas of skill/knowledge were quite mixed. When the top two categories ("of above average importance" and "extremely important") are combined, the respective percentages of each group of instructors are as follows:

	Vocational	Academic	Other
Simulations	70%	33%	58%
Field trips	51%	31%	41%
Construction & scoring essay test questions	37%	71%	42%
Bloom's taxonomy of educational objectives	60%	23%	56%

Thus, we see that Simulations, Field trips, and Bloom's taxonomy tend to be considered more important by vocational instructors. Academic area instructors value "Constructing & scoring essay test questions" to a greater extent.

MEANS

Means and standard deviations are reported in the left-hand column of pp. 5 - 6. Means range from a low of 1.73 to a high of 3.72. An area of knowledge and/or skill whose mean is close to 2.00, could be interpreted as being regarded as "fairly important"; close to 3.00 is "of above average importance", and close to 4.00 is "extremely important".

Rank order of the seven highest and lowest means:

1.	3.72	Student motivation	2.24	Brainstorming
2.	3.61	Reinforcement of learning	2.08	Measures of central tendency
3.	3.54	Retention of learning	2.05	Role playing
4.	3.41	Student learning styles	1.98	Measures of variability
5.	3.37	Discussions	1.98	Correlation
6.	3.35	Encouraging creativity	1.89	Percentile rank
7.	3.32	Problem solving/discovery learning	1.73	Standard scores ("z", "T")

428 Community College Instructors
240 Responses
56% Return

DR. DANA ELMORE
May 4, 1979

SUMMARY
of
QUESTIONNAIRE

PRINCIPLES OF LEARNING/TEACHING STRATEGIES FOR COLLEGE INSTRUCTORS

1. *What would you say is the relative importance of each of the following FOR TEACHING IN YOUR FIELD at the college level?*

   CIRCLE THE NUMBER TO INDICATE YOUR RESPONSE.

Knowledge and/or skill in each of these is: TEACHING STRATEGIES: UTILIZATION OF . . .	Mean (Stand. Dev.)	1 of very LITTLE importance No.	%	2 FAIRLY important No.	%	3 of ABOVE AVERAGE importance No.	%	4 EXTREMELY important No.	%	insufficient knowledge to judge No.	%
a. Lecturing	3.27(.91)	13	5.4	35	14.6	64	26.7	126	52.5	1	.4
b. Discussions	3.37(.79)	6	2.5	28	11.7	76	31.7	128	53.3	2	.8
c. Role playing	2.05(1.08)	93	38.7	52	21.7	46	19.2	29	12.1	14	5.8
d. Problem solving/discovery learning	3.32(.89)	12	5.0	29	12.1	61	25.4	125	52.1	8	3.3
e. Simulations	2.51(1.12)	54	22.5	52	21.7	58	24.2	54	22.5	18	7.5
f. Individual projects	2.73(1.01)	33	13.8	62	25.8	79	32.9	63	26.2	2	.8
g. Demonstrations	3.04(1.01)	26	10.8	35	14.6	73	30.4	95	39.6	5	2.1
h. Laboratory	2.92(1.16)	42	17.5	33	13.8	48	20.0	99	41.2	14	5.8
i. Self-paced instructional modules	2.59(1.09)	47	19.6	50	20.8	67	27.9	55	22.9	17	7.1
j. Audio/visual materials & equipment	3.03(.93)	18	7.5	46	19.2	85	35.4	89	37.1	2	.8
k. Field trips	2.25(1.05)	69	28.7	71	29.6	56	23.3	36	15.0	6	2.5
l. Brainstorming	2.24(1.06)	70	29.2	62	25.8	54	22.5	34	14.2	19	7.9
EVALUATING											
a. Constructing & scoring essay test questions	2.53(1.21)	71	29.6	38	15.8	52	21.7	71	29.6	3	1.2
b. Constructing objective type test items	3.03(1.05)	31	12.9	34	14.2	69	28.7	102	42.5	2	.8
c. Item analysis	2.71(1.04)	35	14.6	50	20.8	72	30.0	57	23.7	17	7.1
d. Grading systems	2.89(1.02)	28	11.7	45	18.7	75	31.2	77	32.1	9	3.7
e. Measures of central tendency (mean, median, mode)	2.08(.95)	74	30.8	80	33.3	53	22.1	19	7.9	10	4.2
f. Measures of variability (range, standard deviation)	1.98(1.00)	94	39.2	61	25.4	50	20.8	20	8.3	11	4.6
g. Validity and reliability	2.62(1.08)	44	18.3	56	23.3	62	25.8	59	24.6	12	5.0
h. Percentile rank	1.89(.96)	100	41.7	62	25.8	43	17.9	16	6.7	13	5.4
i. Standard scores ("z," "T")	1.73(.92)	110	45.8	53	22.1	30	12.5	12	5.0	29	12.1
j. Correlation	1.98(1.04)	91	37.9	57	23.7	38	15.8	24	10.0	25	10.4

Knowledge and/or skill in each of these is:	Mean (Stand. Dev.)	1 of very LITTLE importance No.	%	2 FAIRLY important No.	%	3 of ABOVE AVERAGE importance No.	%	4 EXTREMELY important No.	%	insufficient knowledge to make judgment No.	%
GOALS/OBJECTIVES											
a. Writing general course goals	3.31(.87)	9	3.7	36	15.0	65	27.1	127	52.9	2	.8
b. Writing specific instructional objectives	3.26(.92)	15	6.3	32	13.3	66	27.5	124	51.7	2	.8
c. Bloom's taxonomy of educational objectives (cognitive, affective, psychomotor domains)	2.32(1.14)	59	24.6	45	18.7	40	16.7	39	16.2	53	22.1
THEORIES OF LEARNING & RELATED TOPICS											
a. Stimulus response (Skinner)	2.39(1.02)	45	18.7	53	22.1	59	24.6	29	12.1	51	21.2
b. Cognitive-field (Bruner)	2.59(1.01)	31	12.9	42	17.5	62	25.8	34	14.2	68	28.3
c. Developmental theory (Piaget)	2.58(1.00)	32	13.3	44	18.3	64	26.7	34	14.2	62	25.8
d. Mastery learning (Bloom)	2.83(1.02)	22	9.2	40	16.7	54	22.5	55	22.9	65	27.1
e. Student motivation	3.72(.62)	4	1.7	8	3.3	36	15.0	180	75.0	10	4.2
f. Reinforcement of learning	3.61(.69)	4	1.7	14	5.8	49	20.4	160	66.7	10	4.2
g. Retention of learning	3.54(.66)	2	.8	15	6.3	68	28.3	141	58.7	12	5.0
h. Student learning styles	3.41(.81)	7	2.9	24	10.0	59	24.6	125	52.1	19	7.9
i. Encouraging creativity	3.35(.86)	9	3.7	29	12.1	59	24.6	125	52.1	12	5.0

INDICATE YOUR RESPONSE TO THE FOLLOWING ITEMS BY PLACING A CHECK MARK IN THE APPROPRIATE BLANK.

2. *About how many units of upper division or graduate course work have you completed in educational psychology or psychological foundations of education?*

41 17.1%	None
70 29.2	1 - 6 semester units (or 1 - 9 quarter units)
61 25.4	7 - 12 semester units (or 10 - 18 quarter units)
27 11.3	13 - 18 semester units (or 19 - 27 quarter units)
15 6.3	19 - 24 semester units (or 28 - 36 quarter units)
24 10.0	25 or more semester units (or 37 or more quarter units)

3. *Have you completed professional education course work or a program specifically to prepare you for teaching college level courses?*

104 17.1%	No
134 55.8%	Yes If "Yes," at what college or university?

(Name of institution) _____ (Location) _____

4. *What is the highest college or university degree you have earned?*

No.	%	
2	.8%	None
5	2.1%	A.A. Degree
15	6.3%	Bachelor Degree in _____ (major)
192	80.0%	Masters Degree in _____ (major)
24	10.0%	Doctorate Degree in _____ (major)
1	.4%	Other (please specify): _____

5. *What teaching credentials do you have? CHECK AS MANY AS APPLY.*

		None
20	8.3%	Elementary
98	40.8%	Secondary
203	84.6%	Community College/Junior College
58	24.2%	Special Subject (please specify): _____
47	19.6%	Administrative
39	16.2%	Supervisory (please specify): _____
22	9.2%	Other (please specify): _____

6. *How long have you been employed as a full time college instructor?*

36	15.0%	Two years or less
43	17.9%	3 - 5 years
74	30.8%	6 - 10 years
51	21.2%	11 - 15 years
18	7.5%	16 - 20 years
17	7.1%	21 years or longer

7. *What is your official employment status?*

9	3.7%	Temporary (full time)
29	12.1%	Probationary, regular position (full time)
198	82.5%	Tenured position (full time)
		Part time
2	.8%	Other (please specify): _____

8. *In what subject area(s) are you now teaching?*

"Primary" subject: SEE RIGHT COLUMN ↗

8. In what subject area are you now teaching (primarily)?

15	6.3%	Business
62	25.8%	Occupational Programs
18	7.5%	Health/P.E./ Recreation
21	8.8%	Humanities/Fine Arts
35	14.6%	Language Arts
28	11.7%	Science/Math
25	10.4%	Social Sciences
32	13.3%	Interdisciplinary/ Student Services
3	1.2%	Other Misc.

9. *What aspect(s) of teaching seemed most difficult to you during your first year or two at the college level? (For additional space use reverse side of page.)*

SEE PAGE 8 FOR AN ANALYSIS OF RESPONSES TO THIS ITEM.

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ANALYSIS OF RESPONSES TO ITEM NINE

WHAT ASPECT(S) OF TEACHING SEEMED MOST DIFFICULT TO YOU DURING YOUR FIRST YEAR OR TWO AT THE COLLEGE LEVEL?

	No. of Responses	Percent of Those Citing a Relevant Problem: N = 181
• Curriculum development; course organization; getting and organizing resources; planning daily and long range; preparation; not enough time; pacing	52	29%
• "Instructional Fit": finding the right instructional level for students; diverse student abilities; trying to teach/expect too much of students	34	19
• Grading/evaluating	16	9
• Preparing lectures; lecturing effectively	15	8
• Politics of the institution; demands of colleagues	14	8
• Insecurities; lack of preparation in pedagogy; lack of experience	11	6
• Motivating students; making course interesting	10	6
• Teacher-student relationships; assuming role of teacher; developing teaching "style"	10	6
• Course objectives	6	3
• Knowing course content	6	3
• Constructing examinations	5	3
• "Stagefright"	2	1
• Other (not relevant)	7	
• Respondent stated: "No problem"	20	
TOTAL:	240	101% *

* Percentage does not equal 100% due to rounding off.

NOTE: Several respondents cited more than one problem area: the figures above are based upon what seemed to be the instructor's main problem area.

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